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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR      | ATTORNEY DOCKET NO.           | CONFIRMATION NO. |
|--|-------------|---------------------------|-------------------------------|------------------|
| 09/931,229   | 08/16/2001  | Douglas Elmer Wallace JR. | M-11625 US                    | 2862             |
| 33438  | 7590        | 09/22/2004                |                               |                  |
| HAMILTON & TERRILE, LLP<br>P.O. BOX 203518<br>AUSTIN, TX 78720 |             |                           |                               |                  |
|  |             |                           | EXAMINER<br>GLENN, KIMBERLY E |                  |
|  |             |                           | ART UNIT<br>2817              | PAPER NUMBER     |

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/931,229

Applicant(s)

WALLACE ET AL.

Examiner

Kimberly E Glenn

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-39 is/are allowed.
- 6) ☒ Claim(s) 1-19 21-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claims 21 and 34 are objected to because of the following informalities: Claim 21 depends upon cancelled claim 20. Claim 34 depends upon itself. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-9, 18, 19, 24, 25, 27, 28, 30, 33 are 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 18, 24, 27, 30 and 33, disclose that the second turn coupling the first linear segment to an intermediate linear segment and also coupling an intermediate segment to the second linear segment. Are these the intermediate segments are different intermediate segments? If the later is true, examiner suggest using terminology such as first and second intermediate segments.

Claims 6-9 recites the limitations "the originating segment, the first linear segment and the second linear segment" in claim 6. There is insufficient antecedent basis for this limitation in the claim.

Claims 24, 25 and 28 recites the limitation "the second trace" in claim 24. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

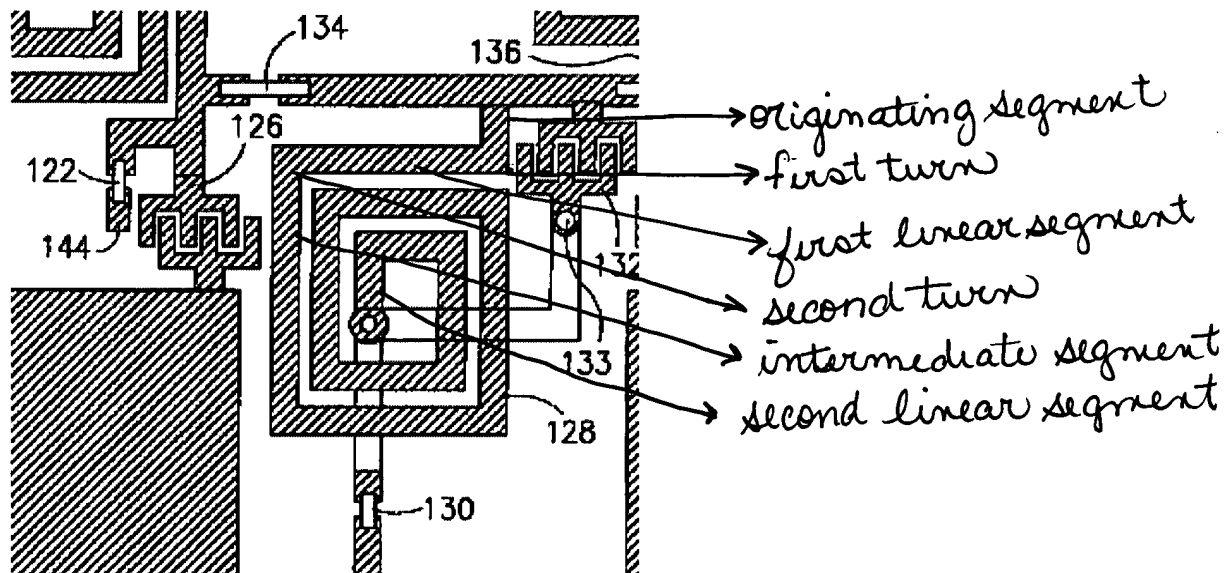
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10-18, 22-24, 26, 27, and 29-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Mostov US Patent 6,558,873 in view of Kawaguchi US Patent 4,888,568. <sup>y</sup>  
(of record)

Mostov disclose in figure 10 a LC filter comprising a terminal 144 (first conductive pad or active conductor) which provides an input voltage  $V_I$ , a ground plane (second conductive pad or reference conductor) situated on the upper and lower layer of the circuit board, a capacitor 134 (capacitive element), which is connected to terminal 144 through capacitors 122 and connected to ground plane through inductor 128 and capacitors 132 and 130, a inductor 128 (serpentine conductor) disposed on the circuit board and having a first end (see figure 8) connected to terminal 144 through capacitors 134 and 122 and a capacitor 130 ( capacitance) connected to second end of the inductor. (Claims 1, 10, and 22). The inductors, as well as the capacitors, are printed on the PCB. (Claims 2 and 16) Inductor 128 and capacitor 130 form a series resonant circuit. The LC filter operates at RF frequency range.

The inductor is comprises a plurality of substantially linear segments, an originating segment coupling a first linear segment to terminal 144, a terminating segment coupling

a second linear segment to the capacitor 130 and turn coupling two adjacent linear segments. (Claims 5, 17 and 23)



Thus, Mostov is shown to teach all the limitations of the claims, with the exception of a tuning capacitance coupled to the second end of the serpentine conductor, the tuning capacitance having a planar form and the tuning capacitance printed on the circuit board.

Kawaguchi discloses a LC circuit comprising a trimmable capacitor and inductors in figures 11A and 11b. The capacitors comprise of trimming electrodes 52a and 52 and capacitance electrodes 54,56,58 disposed on the main surface of the dielectric (circuit board) and trimming electrodes 60a and 60b and capacitance electrodes 62, 64 and 66 disposed opposite surface of the dielectric. The capacitors have a planar form and are formed on dielectric surface (circuit board).

One of ordinary skill in the art at the time of the invention would have found to obvious to replace the general capacitor 130 with the tunable capacitor as taught by Kawaguchi.

The motivation for this modification would have been to provide a capacitor that is adjusted by trimming the trimming electrodes whereby the resonant frequencies determined by the inductors can be made to coincide with each other and the spurious response in the frequency characteristic is suppressed.

#### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Allowable Subject Matter***

Claims 7, 19, 25 and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or fairly teach the serpentine conductor has a length (L) and a width (W) and wherein the respective lengths of the turns establishes a space (S) between adjacent linear segment and wherein the number of turns is equal to N, and wherein S, L, W and N are chosen so that the serpentine

conductor is at least approximately series resonant with the tuning capacitance at a significant frequency  $F_0$ .

Claims 36-39 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not disclose or fairly teach the capacitance formed by a conductor deposited on a surface of the printed circuit board and separated from the ground plane by the printed circuit board to have a predetermined tuning capacitance set by the printed circuit board dielectric thickness.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (571)-272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly E Glenn

  
BENNY T. LEE  
PRIMARY EXAMINER  
ART UNIT 2817